Module 12: Operational Control

GUIDANCE

To ensure that you satisfy the commitments in your environmental policy, certain operations and activities must be controlled. Where operations or activities are complex and/or the potential environmental impacts are significant, operational controls should include documented procedures. Procedures can help your organization to manage its significant environmental aspects (SEAs), ensure regulatory compliance, and achieve environmental objectives. Procedures can also play an important role in employee training.

Documented procedures also called operational control procedures should be established where the absence of procedures could lead to deviations from the environmental policy (including the commitments to compliance and pollution prevention) or from your objectives and targets. Determining which operations should be covered by documented procedures and how those operations should be controlled is a critical step in designing an effective EMS. Remember that you might need operational controls to manage SEAs that have legal requirements, regardless of whether you established objectives and targets for each of them.

As mentioned previously, for every SEA you identify, it is desirable that one of two actions be taken. The action may include either:

- Evaluating alternatives to make changes in processes in order to reduce the potential for impact, or
- Writing operational control procedures for activities or steps in a production process where the potential impact can be controlled.

In writing operational control procedures for an SEA, consider the environmental objectives desired, the targets set for performance and write the procedures to ensure that the objective will be met. Your company may already have many procedures in place. These should be reviewed to make sure that they are consistent with EMS objectives. This module describes the process for setting objectives, developing operational controls, and creating the organizational support for ensuring that those objectives are met. If you determine that process changes should take place in order to address an SEA, the EMS emphasizes the need to evaluate alternatives before setting targets.

In determining which operations and activities need to be controlled, look beyond routine production or service delivery. Activities such as equipment maintenance, start-up, and shutdown, management of on-site contractors, and services provided by suppliers or vendors could affect your organization's environmental performance significantly.

The following are some examples of the kinds of activities that might be improved with operational controls:

- management/disposal of wastes
- approvals for using new chemicals
- production processes or operations
- storage & handling of raw materials and chemicals
- wastewater treatment
- building and vehicle maintenance
- transportation
- operation and maintenance of equipment
- management of contractors
- marketing and advertising
- acquisition or construction of property and facilities

The process of setting targets and ensuring their attainment has several steps that are discussed in more detail below:

1. Determine the possible causes of a potential impact.
For all of your significant environmental aspects, you should determine the cause of the impact. In some cases, the cause might seem obvious. However, sometimes the root cause of the problem is not the most obvious cause. Use the "root cause" analysis described in Module 15 to help your EMS team get to the cause of the impact prior to developing your operational controls.

2. Set targets and measurement indicators for environmental performance.
As discussed in Module 5, you need to set a target for each objective and establish measurements for environmental performance indicators. The targets should reflect correction of the root cause identified above. Measurement indicators should document changes in the causes identified above. Using the measurement indicators, you can determine if your operational controls are helping you meet your objectives.

3. Draft operational controls.
Next, for each significant aspect that you have decided to address with procedures, draft operational controls. Review each of the causes identified in your root cause analysis that would contribute to the environmental impact of a significant aspect. Address the causes by drafting operational controls.

Operational controls may already exist for some of the activities associated with a SEA. Identify which SEAs have written procedures that describe operational controls and which need to have procedures developed. In some cases the procedures that you have in place to comply with environmental and health and safety regulations may be useful to meet your EMS objectives. **Table 12-1: Partial List of Typical Operational Controls for Activities at a Federal Facility** might help your facility identify some of the operational controls that might be important to address SEAs.

Table 12-1: Partial List of Typical Activity Areas and Operational Controls at a Hypothetical Federal Facility

Category of Activity	Operational Control (Procedure)
Purchase of Raw Materials	• Subcontractor Requirements • Implementation of Executive Order on Environmentally Preferable Products Purchasing (Recycled Content)
Tank Farm and Fuel Transfer	• Above Ground Tank Inspection • Taking on Fuel • Spill Reporting and Clean-up • Secondary Containment Inspection
Storage Raw Materials (Chemicals) and Hazardous Waste Accumulation	• Bulk Storage and Containment • Containerized Material Storage • Drum Handling – Satellite and Warehouse Storage • Hazardous Waste Operations Procedures (see Example 12-1 for an example operational control instruction for a Hazardous Waste Satellite Accumulation Area) • Waste Manifest/Chain of Custody • Bulk Cargo Transfer Inspection • Hazardous Waste Area Inspection
Facility Wastewater Management	• Facility Wastewater Handling • Facility Sanitary Waste Disposal • Oily Water Separation and Transfer • Industrial Process Wastewater Treatment • Storm Water Management • Control of Discharge and Disposal of Wastewater (Analytical Requirements)
Surface Preparation (Hydro and Abrasive Blasting) and Painting	• Hydroblasting Discharge Procedure • Air Emissions Control of Blasting • BMPs of Surface Preparation and Painting • Designated Material Mixing Areas • Excess Material Handling • Environmental Requirements for Distribution and Handling of Coatings • Operational Control for Control of Coating and Thinner Use
Shops and Facility Plant Maintenance	• Environmental Compliance Assessment Checklist (Federal Agency Guidance for agency this facility is a part of) • Maintenance and Machine Shop Checklist • Disposition of Fluorescent Bulbs, Batteries, and Mercury Items

3. Draft operational controls (Cont'd.)

This EMS template provides you with **Tool 12-2: Sample Worksheet for Determining Which Operations Require Operational Controls** to help guide the process of establishing necessary operational controls.

It is useful to involve the people who will implement the procedures in drafting them. You can accomplish this in several ways:

- Meet with workers and have them describe current procedures. Discuss the environmental objective desired and obtain their input on operational controls (procedures) to ensure that the objectives will be met.
- Have someone (possibly an intern) interview the workers to establish current (undocumented) procedures; then draft (or revise) operational controls. Have the workers and a manager review the draft and incorporate their input.

Remember to keep written operational controls simple and concise. They should include the appropriate actions, precautions, and notifications required. Focus on activities that may lead to significant impacts and avoid getting overwhelmed by trying to control every activity and process.

4. Designate responsibility for maintaining and reviewing operational controls.

Designate those people responsible for maintaining the controls and for reviewing them to ensure that procedures are followed and deviations are corrected. Generally, the workers responsible for the SEA under consideration will be responsible for implementing the associated operational controls. The immediate line manager would most likely be responsible for regular review of the controls. It is helpful to list those people responsible for each set of procedures. **Tool 12-3** might help you assign operational control responsibilities.

5. Develop training.

Achieving success in meeting environmental objectives for each SEA depends upon making sure that each person responsible for maintaining or reviewing controls has received adequate training. After operational controls are drafted, develop a training program that ensures everyone understands the controls and their role in ensuring that they are followed. Training can include on-the-job training. **Tool 12-4** is provided to help your facility to determine training needs associated with operational controls. It should help you identify, plan for, and track the training needs of your employees. This information should be combined with general environmental training when creating an integrated training needs analysis for your EMS (See Module 8).

6. Take corrective action when objectives are not met.

Take action to correct failures in operational controls as quickly as possible to meet environmental objectives. You can record corrections made on the Corrective and Preventive Action Notice included in Module 15 (Form 15-2a).

A sample operational control procedure is provided as **Example 12-1: Operational Control for Hazardous Waste Satellite Accumulation Areas**. Sample forms are not provided with this Example but would include Form 12-1a, Daily Check of SAA, and 12-1b, Hazardous Waste Inspection Checklist.

TOOLS

Tool 12-1: Operational Controls Worksheet

Have we **identified operations and activities** associated with significant environmental aspects, legal requirements, and environmental objectives? If not, **how will this be accomplished**? Who should be **involved**?	
What operations and activities are associated with **significant environmental aspects**?	
What operations and activities are associated with **legal requirements**?	
What operations and activities are associated with environmental **objectives and targets**?	
How are the above operations and activities **controlled**? (list methods)	
How do we know whether these **controls are adequate** (i.e., to manage significant aspects, to ensure compliance, to achieve objectives?	
How do we **train** employees and contractors on relevant operating controls?	
If **new controls** are needed (or **existing ones need to be revised**), what is our **process** for doing so? Who needs to be **involved** in this process?	
Our next step on operational control is to …	

Tool 12-2: Sample Worksheet for Determining Which Operations or Activities Require Operational Controls

Operation or Activity with SEA to be Controlled	Procedure is Needed			No procedure is needed
	And Must Be Developed	Procedure Exists, but Must Be Documented	Exists and Is Documented	

Tool 12-3: Sample Worksheet for Operational Control Responsibilities

SEA	Operational Control Procedures (list)	Responsible for Maintaining Controls

Tool 12-4: Sample Worksheet for Training Plan for Operational Controls

SEA	Operational Control Procedure(s)	Person(s) Responsible for Procedure's Implementation	Training Needs	How to Train	When/ Length	Budget	Completion Date	Person Responsible for Training

Tool 12-5: Sample Procedure for Development of Operational Control Procedures

Purpose

By developing operational control procedures for critical activities [i.e., those activities associated with significant environmental aspects (SEAs)], [Your Facility's Name] intends to mitigate and control, to the extent possible, the environmental impacts associated with its SEAs.

Procedure

1. The Cross Functional Team (CFT), with additional input from other employees as needed, carries out a root cause analysis of each SEA to determine the underlying cause(s) of the environmental impact. As part of the root cause analysis, the committee will determine the need for (and adequacy of, if already existing) operational control procedures to control the critical activities related to the and record findings on Form 12-5. The CFT, with input from operations managers as needed, will also select one or more indicators for the purposes of monitoring [Your Facility's Name] environmental performance related to each SEA.

2. Where there is a need to create or modify an operational control procedure, the CFT assigns a member of the CFT to draft an operational control procedure, with input from the employees who undertake that procedure. Where possible, environmental controls will be integrated into existing operational control procedures. In other cases, a new procedure will be written. The operational control procedure will be issued as a "Work Instruction," (that is, a summary list of required steps or measures). In addition to describing the steps necessary to carry out the particular activity in an environmentally sound manner, the work instruction will include steps to conduct monitoring, as applicable.

3. After the operational control procedure has been developed and implemented, its status is recorded as such on Form 12-5. The procedure itself is entered into the relevant [Your Facility's Name] operator's handbook and/or is posted at the site of the activity in question. It is also listed in the EMS manual, or included in it, as a procedure related to the EMS.

Frequency

As new SEAs are identified. For existing SEAs, a review of the associated root cause analysis and operational control procedures is conducted yearly.

Records

Form 12-5: EMS Operational Control Procedures, is maintained by the EMS coordinator. The procedures themselves are maintained in the relevant [Your Facility's Name] operator's handbook and/or posted at the site of the activity in question. Also, each procedure is listed in EMS documentation such as the EMS manual (listed or included).

Form 12-5: Sample Form for EMS Operational Control Procedures

SEA	Measurement Indicator(s)	Associated Job Functions	Existing Operational Control Procedures	Operational Control Procedures Development/ Modification Needed	Person Responsible/ Status	Location Posted

Contact Person: Date Complete

EXAMPLES

Example 12-1: Operational Control for Hazardous Waste Satellite Accumulation Areas

ENVIRONMENTAL OPERATING PROCEDURE/WORK INSTRUCTION

PROC-EMS-12-1: Hazardous Waste Satellite Accumulation Areas

1.0 Purpose:

Maintain compliance with federal and state regulations for accumulating hazardous waste temporarily in various work areas at [Your Facility's Name].

2.0 References:

2.1. 40 Code of Federal Regulations 261

2.2. 40 Code of Federal Regulations 262

2.3. State Hazardous Waste Regulations (to be completed by each facility)

3.0 Definitions

3.1. Satellite Accumulation Area (SAA) – an area within the facility at the point of generation that can have a maximum of55-gallons of each type of hazardous waste generated at that location. Only one container of each type of waste may be used for accumulation in each designated satellite accumulation area.

3.2. Accumulation state date – the date when a container stored in a SAA becomes full. The container must be moved from that location to the waste storage area within 2 days.

3.3. Full – for the purposes of this instruction, full, a container shall be considered to be full when waste has reached within 4-inches from the top of the container.

4.0 Responsibility:

4.1. The Environmental Manager is responsible for overall implementation and checking for implementation of this operational control procedure.

4.2. The designated Production Supervisor for each production process is responsible for implementation of this procedure in his or her work area.

4.3. The Hazardous Waste Managers are responsible for implementation of steps defined below for their respective satellite accumulation areas.

4.4. Employees that add waste to satellite accumulation areas are responsible for the items described below for Employees.

5.0 Procedure

5.1. SAAs shall be designated and tracked by the Environmental Manager. The Environmental Manager will maintain a map showing each SAA. The Environmental Manger will maintain a list of all Hazardous Waste Managers.

5.2. Supervisors of areas that generate hazardous waste on a regular basis will have a Hazardous Waste Manager in their area. The Supervisor must notify the Environmental Manager of any changes to Hazardous Waste Managers within his or her production area. The Supervisor also must notify the Environmental Manager of the number of waste types and containers to be used in his or her SAA and of any requests for new SAAs or requests to modify an SAA.

5.3. Supervisors for areas that may generate hazardous waste on a one-time basis will coordinate with the Environmental Manager to have the waste picked up in a timely manner. Waste should not be accumulated in these areas on a regular basis.

5.4. Each area that is designated as a SAA must comply with the following procedure:

5.4.1. Only one container for each defined type of hazardous waste is allowed in the SAA at any given time. The containers will be obtained from the Environmental Manager and will be compatible with the waste they are to contain.

5.4.2. The container must have a label with the works “Hazardous Waste” on it before any waste can be added to the container. Labels are available from the Environmental Manager. As an alternate a marker or other means should be used to put these words on the accumulation container.

5.4.3. The label also must include a description of the type of waste in the container. The Environmental Manager will conduct any waste analysis and provide waste labels or waste labeling instructions for each waste.

5.4.4. The container will not be dated until the container is full is defined as having waste to within 4-inches of the rim of the container.

5.4.5. When the container is full it will be dated. The Supervisor for each SAA are is responsible for having the container moved to the hazardous waste storage area within 48 hours of it being filled and dated.

5.4.6. If a new container is needed when the existing container is full; the full one must be moved immediately to the storage area (see item 5.4.1).

5.4.7. Hazardous Waste Managers should inspect their SAA area daily. These inspection records will be maintained by the SAA area in case of an inspection or internal audit. The Supervisor is responsible for making sure the inspection records are up to date for his or her SAA.

5.4.8. Each employee that adds waste to a container in an SAA should read the sign above the SAA area and make sure that the items listed are conducted each time a container is accessed (for example, the waste is placed in the correct container, the container is closed after the addition of waste, etc.). These checks do not need to be documented. The Supervisor is responsible for making sure that each employee knows to do this check and does them.

5.4.9. The Environmental Manager will conduct a weekly inspection of all SAAs at this facility.

6.0 Records

6.1. The Hazardous Waste Managers will use Form 12-1a, Daily Check of SAA, form to note that they have checked their area for the day. This Form will be maintained at the SAA for which they are responsible.

6.2. The signs posted above each SAA document that "each use" checks are conducted by employees.

6.3. The Environmental Manager will complete Form 12-1b, Hazardous Waste SAA Inspection Checklist, and maintain this checklist in the Environmental Office.

6.4. Training requirements for personnel supporting hazardous waste accumulation are documented under Training Operational Controls.

7.0 Revision - Date: March 2002, PROC-EMS-12-1 (REV 1)

Approved by:

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Environmental Management Representative

Note: This is a sample operational control procedure. You should revise the example for your operations if you wish to use it. In revising it, it is critical to review the requirements for your facility in accordance with the most recent federal, state, and local requirements in your area.